



ENVIRONMENTAL SERVICES DEPARTMENT

AIR QUALITY DIVISION

1001 N. Central Avenue
Phoenix, Arizona 85004

Technical Guidance # 97-001

August 26, 1997

Rule: 320, Section 304

Issue: Applicability of the hydrogen sulfide fence line limit to fuel burning equipment

Discussion: Hydrogen sulfide is listed as a flammable gas in its Material Safety Data Sheet. An examination of its heat of formation versus that of sulfur dioxide shows that hydrogen sulfide is readily oxidized. In addition, hydrogen sulfide has an autoignition temperature of only 500 °F. Any hydrogen sulfide in the fuel would therefore be converted entirely to oxides of sulfur at conditions far less strenuous than these present in normal fuel burning operations (around 1400 °F). This is supported by AP-42 which, in Section 3.1 for electrical generation turbines, assumes that all sulfur in the fuels are converted to SO₂ for both natural gas and distillate fuel oil.

Conclusion: Since hydrogen sulfide is not emitted from the normal combustion of natural gas and fuel oil, the hydrogen sulfide fence line concentration as listed in Rule 320 Section 304 does not apply to these fuel burning activities and no compliance demonstration is needed.